



The Minuteman Repeater Association

The Minuteman

Volume 37, Number 2

November 2007



Membership Meeting ~ 14 November, 7:30 PM @ MEMA in Framingham

NOTE: This is a week earlier than normal!

Bob Stone, N1KMA

The Wide Area Amateur Radio Network

Directions on Page 6

Talk in freq: 147.27

Bob is a key player in the Wide Area Amateur Radio Network (WAARN). The network consists of seven full time linked repeaters in Maine and New Hampshire, including two sets of three synchronous transmitters on 145.21 and on 441.50. When you are operating within the network area, your signal is voted by the three receivers and retransmitted on all three transmitters. But, the system is more than that - all repeaters are tied to a central HUB via common carrier. The network can be controlled via traditional DTMF but also through a web interface that displays the current system status. Bob will describe their system and also talk about future plans.

President's Message ~ Bob DeMattia, K1IW

Much is being discussed about the advent of the Japan Amateur Radio League's D-Star standard. The JARL developed this in cooperation with several Japanese companies.

So far, only ICOM is producing D-Star based amateur equipment. ICOM's sales have been off to a slow start, but things appear to be picking up a bit. D-Star is a standard for transmitting digital data. In one form, it can send high-speed data on the 23cm band. However it also has a voice mode, for which ICOM manufactures equipment for 2m, 70cm, and 23cm. ICOM claims voice mode requires only 6.25 KHz bandwidth.

In many regions of the country, including New England, the repeater coordinators have adopted a modified band plan which allows D-Star repeaters on the splinter channels between existing analog system in the 145.11 - 145.49

repeater band.

As long as the adjacent channel stations are more than 50 miles distant, no appreciable interference is inflicted on the analog repeaters. This opens up a few repeater channels in areas that have been full for decades. Beyond this, for each group that converts from an analog system to D-Star, a new repeater pair is born.

D-Star equipment is far from cheap - the IC-2820H dual bander will get you back about \$900 - but this is similar to the price of dual bander analog rigs when they first starting being sold in the 90's. If the standard catches on, we can expect other manufacturers to enter the market, and prices to drop.

At the very least, D-Star is amateur-radio's venture into new technology. Isn't that a part of what our hobby has always been about?

Your Dues are Overdue...

...if you have not paid your dues for this year. PLEASE DO!

Page 3 has a Snail Mail form, or go to <http://www.mmra.org> and renew online.

MMRA TIOS Net Control Operators Needed!

See Page 7

We will help you get started.

Table of Contents

<i>Next Meeting</i>	1, 6
<i>President's Report</i>	1
<i>MMRA Information</i>	2, 3, 7
<i>BOD Meeting</i>	4
<i>Treasurer's Report</i>	5
<i>Stoneham 440 Update</i>	5
<i>October Meeting</i>	6
<i>Events & Fleas</i>	8

About the Minuteman Repeater Association

The Minuteman Repeater Association (MMRA) is dedicated to Amateur Radio and public service. The MMRA maintains a large system of repeaters in Eastern Massachusetts.

The MMRA meets (usually) on the 3rd Wednesday of September, November, January, March, and May. Meeting time, locations and talk-in frequency vary. These are announced in the newsletter and on weekly nets. Meetings are open to all interested parties.

The Minuteman newsletter is mailed one week before each meeting. Members are encouraged to submit articles. Articles may be sent to the editor via email to newsletter@mmra.org. The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8PM the MMRA links most of the repeaters for an open net. The topic is "Technical Information and Other Stuff". Please join us.

Membership in the MMRA is open to all radio amateurs. Annual dues are \$25 per individual or \$35 per family. See our website for details.

Email to the club leadership should be sent to contact@mmra.org. The MMRA maintains a web site at: <http://www.mmra.org/>

An email distribution list for club members named "MMRA" has been established at: <http://www.yahoogroups.com/>

No part of this newsletter can be copied or posted elsewhere without prior approval from the club. Your cooperation in this matter is greatly appreciated.

Repeater and Frequency Information

Location	MHz	PL	Call	Note
Bolton	29.620	131.8	W1OJ	Affiliated, PTL (+ FTL to 448.625)
Marlborough	53.810	71.9	W1BRI	PTL
Norwell	145.250	77.0	AC1M	Affiliated, PTL
Mendon	146.610	146.2	N1BHI	FTL
Quincy	146.670	146.2	W1BRI	PTL
Stoneham	146.715	146.2	N1NVL	PTL
Weston	146.790	146.2	N1BE	PTL
Brookline	146.820	146.2	K5TEC	FTL
Brookline	146.985	88.5	W1FCC	Affiliated, PTL
Marlborough	147.270	146.2	W1MRA	PTL
Hopkinton	223.940	103.5	N1BHI	FTL
Quincy	224.400	103.5	N1KUG	FTL
Weston	224.700	103.5	N1NOM	FTL
Marlborough	224.880	103.5	W1MRA	FTL
Weston	442.700	88.5	N1NOM	Network Hub 2 (PTL to Hub1 or 448.625)
Norwell	443.600	88.5	NS1N	Affiliated, PTL
Stoneham	446.725	88.5	W1DYJ	FTL
Princeton	448.625	88.5	W1OJ	Affiliated, PTL (+ FTL to 29.620)
Milford	446.825	100.0	WA1QGU	Affiliated, PTL
Brookline	447.875	136.5	K1IW	Affiliated, FTL
Southborough	449.575	88.5	W1BRI	FTL
Marlborough	449.925	88.5	W1MRA	Network Hub 1 (PTL to 448.625)
Marlborough	144.390	none	W1MRA	APRS Digipeater
???	145.630	146.2	W1MRA	Fox Box

Internet

Echolink node 94940

IRLP node 4133

Notes:

FTL = Full Time Linked (usually to Hub 1)
PTL = Part Time Linked (on schedule or demand)
Most repeaters link to the MMRA Hub 1, several can link to an alternate destination

PL:

PL is required to prevent interference. The code **750** will temporarily disable the MMRA PL on the 2M repeaters.

Autopatch:

Only the Hub 1 has a telephone line. Link to Hub 1 if necessary, then bring up the autopatch using the 449.925 autopatch codes.

Control codes are sent to members upon receipt of dues.

Minuteman Repeater Association, Inc.
P.O. Box 669
Stow MA 01775-0669

A Non-Profit Communications Organization Serving the Public in Time of Emergency

— Membership Form —

☐ New or ☐ Renewal

☐ Individual Membership (Dues: \$25 per year) or ☐ Family Membership (Dues: \$35 per year)

I hereby apply for membership in the MINUTEMAN REPEATER ASSOCIATION, INC. I agree to abide by the rules and regulations of the Association as stated in the bylaws and understand that acceptance of this application entitles me to all rights and privileges of membership as provided under the bylaws.

☐ Check box for Electronic Newsletter: Receive content earlier, and in color. Must supply email address.

Name: _____ Callsign: _____ Class of License: _____
 Address: _____ Home Phone: _____
 Town, State, Zip: _____ Work Phone: _____
 Email Address: _____
 Occupation: _____ Employer: _____
 Member of the ARRL? _____ Other Clubs? _____

Bands and Modes you operate. Please check all that apply:

	Fixed	Mobile	Portable	FM	DTMF	CW	RTTY	PSK31	APRS	Packet	SSB
HF											
VHF											
UHF											
Satellite											

I can and am willing to assist/serve the Association and/or help maintain the Repeaters in the following ways:

- | | | |
|---|---|--|
| <input type="checkbox"/> Antennas | <input type="checkbox"/> Association Officer | <input type="checkbox"/> Board of Directors |
| <input type="checkbox"/> Education | <input type="checkbox"/> Emergency Communications | <input type="checkbox"/> Equipment Construction |
| <input type="checkbox"/> Equipment Transportation | <input type="checkbox"/> Grant Writing | <input type="checkbox"/> Legal Aid |
| <input type="checkbox"/> Medical Aid | <input type="checkbox"/> Meeting Setup | <input type="checkbox"/> Net Control |
| <input type="checkbox"/> Newsletter | <input type="checkbox"/> Public Service | <input type="checkbox"/> Publicity |
| <input type="checkbox"/> Radio Shelters | <input type="checkbox"/> Refreshments | <input type="checkbox"/> Repeater Control Operator |
| <input type="checkbox"/> Repeater Technical Committee | <input type="checkbox"/> Social Events | <input type="checkbox"/> Speaking at a meeting |
| <input type="checkbox"/> Special Projects | <input type="checkbox"/> Technical Library | <input type="checkbox"/> Web Site |
| <input type="checkbox"/> Other _____ | <input type="checkbox"/> Other _____ | |

Other family members:

Name: _____	Callsign: _____	Class of License: _____
Name: _____	Callsign: _____	Class of License: _____
Name: _____	Callsign: _____	Class of License: _____
Name: _____	Callsign: _____	Class of License: _____

MMRA October Board of Directors Meeting

Bob Evans — N1BE — Clerk

Minutes of the MMRA board meeting of 17 October at the offices of Stratus Technology.

Meeting commenced at 7:30

Present were K1KWP, K1IW, W1BRI, WA1NVC, N1BDA & N1BE.

Newsletter editor wants to remind everyone to get their articles to him before the end of the month.

Treasurer's report

Behind on dues collection so far. Have already spent all dues collected except about \$324. Need about 92 more memberships to cover our expected expenses. Need to include membership forms and plea for dues in the next two newsletters. The biggest expense is electricity: \$900/year. Some discussion about solar, switching supplies, etc., for ways to reduce this charge...Particularly at MRW.

Repeater / Project updates

Weston 2 hub upgrade: site work on Oct 27th. Concern about using old hardline because a broken connector might not be easily available. We think there is enough room in the conduit to run another cable if necessary. Bryan is still working on Hub 2, so the link radio changes (Mendon and Weston) will happen after that is done. None the less, it is better to do the antenna work before bad weather sets in.

Also discussed possible antenna reconfiguration at Weston of corner reflector, dipole array, 220 antenna mounted atop the dipole array. See <http://mmra.org/repeaters/map.html> for system-level view of the project.

K1IW to visit Weston tomorrow and take measurements. W1BRI to propose scenarios for antenna reconfiguration.

At Mendon, need to move link radio to port 3 for consistency. Also planning a link radio swap so Mendon can set link frequency to either Hub 1 or 2.

Need to fix roof at Quincy which was discovered damaged during tower work last April. W1BRI to set date for work party.

Stoneham - Bryan has MMRA's 50 Amp Astron power supply. Will use this to replace one on loan from N1BDA. Or possibly W1BRI will fix the 35 A supply that previously was at Stoneham. In either case, will get Steve's PS back to him by the end of December

Moved to buy a M-120 UHF 2-way radio from K1IW to replace Stoneham exciter and two UHF amps. Passed with K1IW abstaining.

Moved to sell exciter and two amps from STO on ebay. Passed.

Voted to allow Marlboro flea talk-in to use 147.27 for their flea in mid-February.

Still need to put up V-2000 antenna at Sligo. (No discussion).

MMRA participation in MARC consortium for next year. (Boston Marathon). Passed motion to continue participation in 2008.

MMRA participation at Boxboro, Aug 22-24, 2008. We agree to participate as we have in the past. Need to discuss items like:

- Whether to have raffle.
- Displays/ video presentation?
- Antenna analyzer?
- Equipment for talk-in.
- Discount for paying dues for two years.

N1KMA (not present) (<http://ham.cleocat.com>) proposal for D-Star @ Marlborough East site. His inter-linked sites at southern Maine and Chester NH are used for ARES traffic. He is looking for a site in EMA to provide digital access on 2M. We discussed possibilities at MRW, MRE, Stoneham. He will talk about D-star at the Nov MMRA meeting. We'd like to accommodate him at one site, MRE, and prefer that he link to his network via the Internet. The board proposed that he provides D-Star repeater, internet (shared with MMRA for echolink), and a very modest rent. We supply shelter, 2-meter antenna, electricity. K1IW to suggest our proposal to him and setup a meeting for further negotiation.

N1JBC repeaters' affiliation of two 70CM and one 2M repeaters in RI. We have contact info and codes to turn his link to us off. One downside is more confusion to determine where potential interference is originating. Would like to be able to disconnect his link from our end. We proposed provisional affiliation, not displayed on our web site. Will finalize or cancel this affiliation at next board meeting. Want to monitor whether he is regularly linked for TIOS and HHTN nets. (W1BRI to monitor)

Meeting plans for Jan, Mar, May.

Is there a meeting site near Stoneham? Is Co-generation plant tour at Stoneham hospital possible?

Possible joint meeting with AARC in Jan in Marlboro. Do they have a speaker? If not, can we get tour by Donnie Cusson?

Want to meet in Weston in Mar or May. Need suggested speakers. Member suggestions would be welcome.

Other Items

MMRA Director W1WH never is free on Wednesday nights for meetings. Can we move board meetings to another night. Can he draft someone else for his seat?

Public Service coordinator may be moving out of the area. Do we need a replacement? We need to clarify process that he is the one who can authorize use of our repeaters for events.

ARES drill on Oct 27th. There will may be check-ins to a net for that event on MMRA repeaters. (Weston will be down for work party some of that day.)

Meeting adjourned at 10:15PM.

The Amateur's Code

The Radio Amateur is:

CONSIDERATE...never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

PROGRESSIVE...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

FRIENDLY...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

BALANCED...radio is an avocation, never interfering with duties owed to family, job, school or community.

PATRIOTIC...station and skill always ready for service to country and community.

Paul M. Segal, W9EEA, 1928

Treasurer's Report

Income	2007-2008 Dues	\$1914.71
	Donations	87.39
	Misc.	0.00
	Total	\$2002.10

Number of members renewed to date = 80
Number additional expected = 121 (\$2303)

Expenses	Spent to date	\$ 868.32
	Expected expenses	3595.75
	Total	\$4464.07

CURRENT DEFICIT \$2461.97

Upcoming MMRA Meetings

All meetings start at 7:30 unless otherwise noted.

Date	Location	Feature
Sep 19 7 PM	Westborough Library	Solar Powered Stations, Phil, N1XTB
Oct 17	Stratus Computer	Board Meeting
Nov 14	MEMA	Wide Area Amateur Radio Network, Bob, N1KMA
Dec 19	TBD	Board Meeting
Jan 16	TBD	TBD
Feb 20	TBD	Board Meeting
Mar 19	TBD	TBD
Apr 16	TBD	Board Meeting
May 21	TBD	General Elections

Update on Stoneham 440

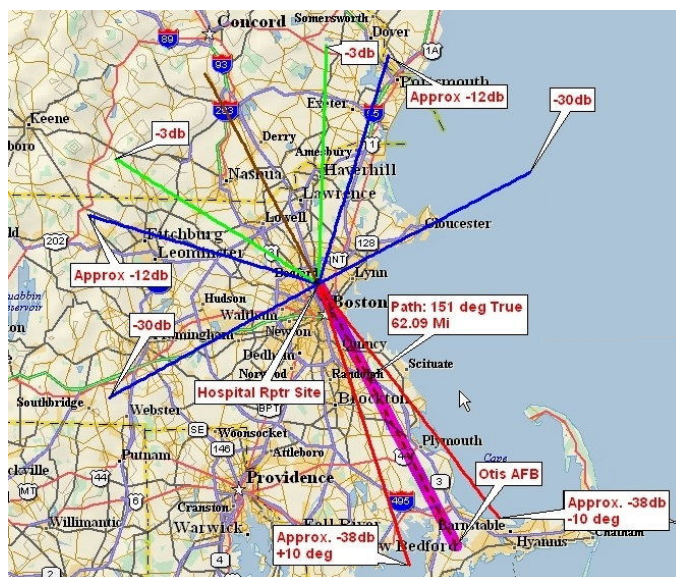
Larry Banks, W1DYJ

As you all know, the Stoneham 446.725 repeater is one of the repeaters that has been cited by the Air Force for interfering with the Pave Paws radar system on Cape Cod.

Our original RF power was ~63 Watts ERP — 20 Watts output to a 5 dB vertical. We were asked to reduce our RF in that direction by 24 dB.

The MMRA has installed a corner reflector antenna pointed away from Cape Cod. This antenna has 40 dB Front-to-Back attenuation and 10 dB forward gain. This should be sufficient to mitigate the problem.

Projected Stoneham 446.725 coverage



(Thanks to Andy, N1BHI for this map)

Overall, while mitigating our interference to Pave Paws, this should improve the MMRA's coverage on 440 from the North to the North-West. With 20 Watts and 10 dB gain the ERP toward Lowell and Concord NH should be 200 Watts. In the cone shown by the green lines it should be >100 Watts ERP.

We expect that this will make both the MMRA and the Air Force happy.

October Membership Meeting ~ Larry Banks, W1DYJ



Phil McNamara, N1XTB, was our featured speaker. Phil is an expert on solar power and he gave us a great overview of how to use solar power for both emergency power and in your

shack. He also gave us a very useful handout of extensive information about solar power.

Phil also demonstrated a number of items, from solar panels to emergency lights, to a complete portable and emergency power system.



Before Phil's presentation, Bob, K1IW, revisited the recent events surrounding Stoneham 440 and Pave Paws:

- July 2006 — USAF contractor conducts interference investigation
- Aug 2006 — MMRA is informed about possible interference
- Oct 2006 — USAF lists 15 repeaters in Boston area. ARRL is involved. Letters to trustees are sent.
- Feb 2007 — USAF sends letter to FCC requesting mitigation by 1 May
- May 2007 — ARRL submits plan to USAF to calculate mitigation
- Sep 2007 — MMRA receives letter detailing required 24 dB reduction
- Sept 2007 — 442.950, 443.450, 443.500, 443.800, 444.250, 447.075 go silent
- Oct 2007 — Corner reflector installed at Stoneham 446.725



Members of the club checking out Phil's goodies after the meeting.

Directions to the MMRA Meeting

From the West:

1. Take Mass Pike East to Exit 12 (Framingham Route 9).
2. Travel ~ 2 miles to MA State Police Headquarters.
3. MEMA is immediately after the State Police (MEMA has several tall communications towers).
4. Enter through the gate.
5. MEMA is underground. Enter building and follow the ramp to the reception desk.

From the East:

1. Take the Mass Pike West to Exit 13 (Route 30).
2. Take Route 30 West ~2 miles going through all lights until the end.

3. Bear right onto Route 9 Westbound.

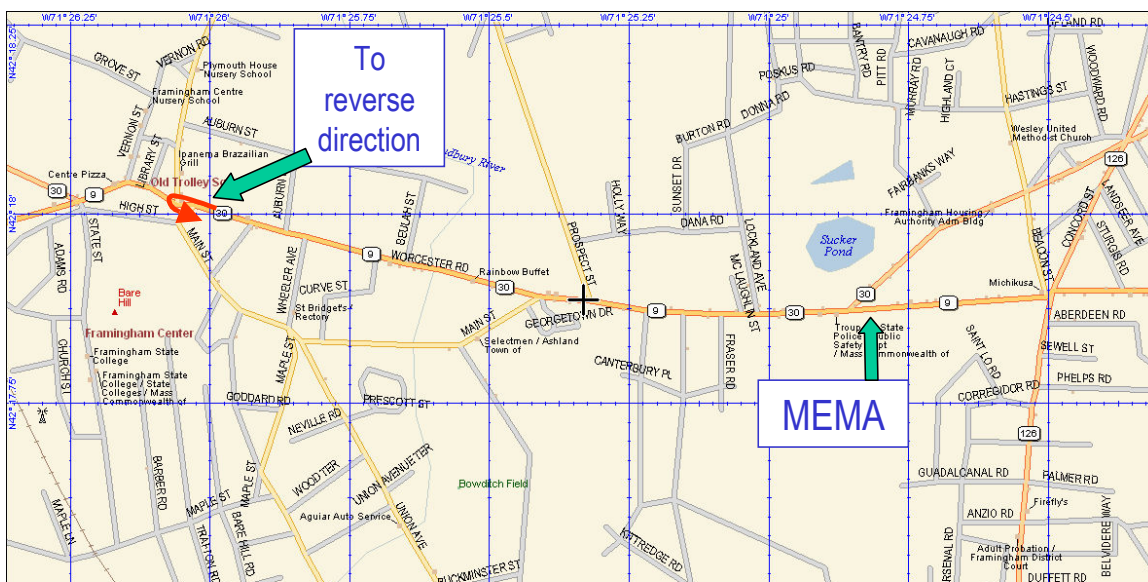
4. The MEMA communication towers are visible across Route 9 on the eastbound side. Continue approximately 1.2 miles on Route 9 Westbound to intersection with Main Street/Edgell Street.

5. Bear right at this intersection to exit Route 9, then follow the signs to make a U-turn.

6. Follow Route 9 back east for ~1.2 miles to MA State Police Headquarters on the right. Now follow "From the West" # 3

From the North or South:

1. Take Route 128 (95) to Route 9 West (Exit 20B).
2. Follow Route 9 for approximately 8 miles. Now follow "From the East" #4



MMRA Leaders

President	Bob DeMattia	K1IW
Vice President	Steve Telsey	N1BDA
Secretary	John McGovern	W1JMC
Treasurer	Kevin Paetzold	K1KWP
Clerk	Bob Evans	N1BE
Technical Officer	Bryan Cerqua	W1BRI
Director 2006-08	Clark Conti	N1NVK
Director 2006-08	Bill Hanrahan	W1WH
Director 2007-09	Steve Schwarm	W3EVE
Director 2007-09	Roger Coulson	WA1NVC
Emergency Coordinator	James Cahill	KB1LOY
Net Manager	Larry Banks	W1DYJ
Newsletter Editor	Larry Banks	W1DYJ
Public Service Coordinator	James Cahill	KB1LOY
VEC Liaison	Bill Wade	K1IJ
Web Page Editor	Bob DeMattia	K1IW

Don't Forget!

Every Tuesday @ 8 PM
Technical, Informational
and Other Stuff Net

The MMRA's repeaters are linked Tuesday nights for the TIAOS Net. Join us! This is a good way to keep up with what is happening in the MMRA and ask your ham related questions.

We need a control operator for the first and third Tuesdays of each month – contact me at W1DYJ@mmra.org if you would like to running the net some evening – we have a script you can use to start with. This is good practice for a number of ham related operations, from emergency preparedness to contesting.

Current Net Control Operators:

Week 1	?????	We Need You!
Week 2	W1EUJ	Dave Goncalves
Week 3	?????	We Need You!
Week 4	K1KWP	Kevin Paetzold
Week 5	W1DYJ	Larry Banks

Newsletter Delivery

If you received this via US Mail, you might want to think about having it sent by eMail. You will receive it earlier, it will be in color, it may have MORE great content, and it will save the MMRA \$\$\$! Send your request to W1JMC@mmra.org.

Past Newsletters are available at <http://www.mmra.org/>

MMRA VE Sessions

3rd Saturday of each Month
 9 AM at the
 Marlboro Public Library
Contact: Bill Wade, K1IJ
 781-891-9079

Evenings 6 to 10 PM,
 Weekends 8 AM to 10 PM.

Accredited by the ARRL VEC



Membership Meeting ~ 14 November, 7:30 PM @ MEMA in Framingham

NOTE: This is a week earlier than normal!

Bob Stone, N1KMA

Directions on Page 6

The Wide Area Amateur Radio Network

Talk in freq: 147.27

Calendar of Ham Radio Events

Public Service Events

See this web site for contact information

<http://purl.org/hamradio/publicservice/nediv>

Nothing Listed

New England Area Ham - Electronic Flea Markets

See this web site for contact information

<http://mit.edu/w1gsl/Public/ne-fleas>

8 Dec	Windsor CT	VR+C Mus
16 Feb	Marlboro MA	AARC
17 Feb	Westford MA	Radio 39 Antique
23 Feb	Milton VT	RANV
30 Mar	Southington CT	SARA
6 Apr	Framingham MA	FARA
19 Apr	Manchester NH	NEAntqRC
20 Apr	Cambridge MA	FLEA at MIT
2-3 May	Deerfield NH	NearFest
18 May	Cambridge MA	FLEA at MIT
30-31 May	Rochester NY	RARA
7 Jun	Hermon ME	PSARC
22-24 Aug	Boxboro MA	FEMARA NE Conv

THE MINUTEMAN REPEATER ASSOCIATION

MMRA

P.O. Box 669

Stow, MA. 01775-0669

Email: contact@mmra.org



WE'RE ON THE WEB
[HTTP://WWW.MMRA.ORG/](http://www.mmra.org/)
